UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support Schools
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MTCC 4401

STUDENT OUTLINE

INSPECT MOTOR TRANSPORT EQUIPMENT/PMCS PROCEDURES

LEARNING OBJECTIVES:

a. Terminal Learning Objectives:

(1) Provided with M-Series vehicles, trailers, equipment and references inspect M-Series vehicles, per the references. (35xx.03.01)

(2) Provided with a requirement to ensure preventive maintenance checks and services (PMCS) is performed on M-Series vehicles and the references, identify PMCS requirements for M-Series vehicles, per the references. (35xx.03.02)

b. Enabling Learning Objectives:

(1) Provided with M-Series vehicles, trailers, equipment and references, identify the references required to perform an inspection on the equipment, per the references. (35xx.03.01a)

(2) Provided with M-Series vehicles, trailers, equipment and references, interpert information on the preventive maintenance checklist, per the references. (35xx.03.01b)

(3) Provided with M-Series vehicles, trailers, equipment and references, identify the resources required to assist in the inspection of equipment, per the references. (35xx.03.01c)

(4) Provided with M-Series vehicles, trailers, equipment and references, identify the procedures for correcting equipment deficiencies, per the references. (35xx.03.01d)

(5) Provided with a requirement to ensure PMCS is performed on motor transport equipment and the references, identify the methods of ensuring PMCS are performed, per the references. (35xx.03.02a)

(6) Provided with a requirement to ensure PMCS is performed on motor transport equipment and the references, identify the references that indicate the types of PMCS that should be performed on motor transport equipment, per the references. (35xx.03.02b)

OUTLINE

1. **INSPECTION OF THE EXTERIOR OF THE VEHICLE**

a. First, Inspect the Vehicle for Damage or Pilferage

(1) Visually check for any obvious damage to the body and cab that would impair the operation of the vehicle.

(2) Check the tires for cuts, gouges, or cracks, and remove all penetrating objects.

(3) Check the condition of the mirrors, to ensure that all mirrors are in place and are not cracked or broken.

b. Next, Inspect the Lights and Reflectors

(1) Inspect all lights to ensure that they are not cracked or missing and check for proper operation.

(2) Make sure all reflectors are on the vehicle and are not cracked or broken.

c. The Items that we will Inspect Next are the Windshield and Windows

(1) Ensure that the windshield and windows are not cracked or broken.

(2) On vehicles equipped with doors, check to ensure that the windows function properly.

(3) On vehicles with windshields that can be moved, move the windshield to check the hinges and pins for serviceability.

(4) Inspect the windshield wiper motor for proper functioning.

(5) Inspect the wiper blades for serviceability.

d. Now walk around the vehicle and inspect the locking and fastening devices.

(1) Inspect the towing pintle for serviceability and ensure that the chain and cotter pin are present and in good condition.

(2) Check all lifting eyes for serviceability and ensure they are not cracked, bent, or broken.

(3) Check all pins and safety clips on vehicles equipped with dropsides and a tailgate.

(4) Check the spare tire mounting bracket and ensure that the tire is secure in its mount.

e. The next items to be inspected are the tire and wheel assemblies.

(1) Check the tires for correct air pressure using the tire inflation gauge.

(2) Use the wheel stud nut wrench and handle to make sure all wheel stud nuts are tight. If nuts are loose, ensure that they are tightened in accordance with the vehicle's technical manual.

(3) Ensure that the vehicle is equipped with a spare tire prior to it being sent on any commitment.

(4) Check the tire tread and tread depth. The tread should not be less than 1/8 of an inch or if the tire is equipped with wear bars, the tread should not be worn beyond the level of the bars.

f. The Air Cleaner is the Next Item to be Inspected

(1) In the case of the M939 and M809 series vehicles, check the air cleaner clamps for tightness and ensure the filter is clean and serviceable.

(2) Inspect the seal for serviceability, any opening left unrepaired will allow water or foreign material to enter the engine.

g. Now, we will Inspect the Condition of the Batteries

(1) Inspect the battery case for cracks or leaking of electrolyte.

(2) Inspect the battery terminals and posts for tightness, damage, and corrosion.

(3) Check the batteries for proper fluid level. If the fluid level is incorrect, ensure that it is adjusted in accordance with the equipment reference.

(4) Inspect the battery compartment for corrosion, rust, or deterioration due to leakage of battery acid.

2. INSPECTION OF THE VEHICLE UNDERBODY

a. Leaks in General. Look under the vehicle for evidence of any fluid leakage, (engine oil, water, brake fluid, gear oil, or fuel).

There are three classes of leaks that you should be familiar with.

(1) Class I leakage - Indicated by wetness or discoloration not great enough to form drops. (Known as seepage.)

(2) Class II leakage - Great enough to form drops but not enough to cause drops to drip from item being checked or inspected.

(3) Class III leakage - Great enough to form drops that fall from the item being checked or inspected. Equipment is not operational.

(4) Operation of equipment with Class I and II leakage is allowable except for equipment with leaks in the hydraulic brake system.

(5) Check all fluid lines for defects and leaks.

(6) In the case of the M809 and M939 series vehicles, check the power steering assist cylinder for damage and leaks.

b. The Next Area to be Inspected is the Vehicle's Chassis

(1) Visually inspect the frame and crossmembers for loose bolts, cracks, broken welds, and excessive rust.

(2) Check the springs and shock absorbers for damage.

(3) Check the flange and joint connections at the propeller shaft(s) to ensure that the bolts are tight and that none are missing.

(4) In the case of the M939 series vehicle and the LVS, check all hose connections on the transmission and transfer case for looseness.

c. Now Inspect the Exhaust and Air Lines for Leaks

(1) During the operation of the engine, listen for exhaust leaks.

(2) After the vehicle has been running and the air system is fully charged, shut down the engine and listen for air leaks.

d. The Differentials are the Next Items to be Inspected. Visually inspect the front and rear differentials for oil leaks at the following locations:

(1) Around the filler and drain plugs.

(2) At the breather assemblies.

(3) At the area where the drive or propeller shaft connect to the differential.

3. INSPECTION OF THE ENGINE COMPARTMENT

a. The First Area to be Inspected is the Fuel System

(1) First, ensure there is an adequate supply of fuel in the fuel tank.

(2) Check the fuel filters for leaks.

(3) In the case of the LVS and M939 series vehicles, open the petcock of the fuel/water separator and drain the fuel into a container until the fuel is clear and free from impurities.

(4) In the case of the M939 series vehicles, check the alcohol level in the alcohol bottle. Fill the bottle with alcohol if the bottle is less than 2/3 full, and check the bottle for cracks or leaks.

b. Next, Check the Engine Oil Level and the Condition of the Oil. Check the engine oil dipstick for the oil level of the engine. The oil level should be between the "Add and Full" lines. If the oil level is incorrect, add or drain the oil as appropriate.

c. Inspection of the Radiator and its Components

(1) Check the coolant in the radiator and surge tank for the proper level and protection. If the coolant level or

condition is incorrect, ensure that the appropriate actions are taken to correct any deficiencies. The checking of the coolant protection is a second echelon function and is not performed by the vehicle operator.

(2) Check the radiator for leaks, clogged condition, or damaged fins.

(3) Check for loose or damaged radiator hoses.

(4) Check the drive belts to ensure none are missing and they are not frayed, cracked, or loose.

d. Inspection of the Hydraulic Brake System. Check the brake fluid level in the master cylinder, if applicable to the vehicle being inspected. The fluid level should be in accordance with the instructions in the technical manual.

(1) In the case of the M809 series vehicle, the master brake cylinder is located in front of the driver's seat under the floor board.

(2) In the case of the M998 series vehicle, the master brake cylinder is located in the engine compartment on the driver's side.

e. Check Vehicle's Power Steering. Check the power steering pump for loose mounts, leaks, and damage. Check the fluid level in the reservoir and adjust the fluid level as required.

f. On vehicles equipped with an air compressor, inspect the pump for leaks, and inspect the hoses for deterioration and leaks.

4. INSPECTION OF THE INTERIOR OF THE VEHICLE

a. Inspection of the Brakes

(1) In the case of the M939 series vehicle, fully charge the compressed air system to 120 psi.

(a) With the parking brake applied, walk around the vehicle and listen for leaks.

(b) Visually check the brake chambers and air reservoirs for obvious damage.

(c) Check the air hoses and lines for cracks and breaks.

(2) In the case of the M1008 and M998 vehicles, without accelerating and with the brake pedal fully released, allow the truck to move forward. As the vehicle moves, slowly depress the brake pedal. The pedal should travel about 1 to 1 1/2 inches before the brakes take hold.

(3) Check the parking brake's ability to keep the vehicle from moving. With the parking brake applied have the transmission engaged, the vehicle should not move.

(4) Check all lines, both air and hydraulic, for leaks.

b. Next, in the case of the M809 series, inspect clutch operation for slipping, grabbing, or chattering.

Check the clutch pedal for free travel in accordance with the equipment technical manual.

c. Check the gages on the instrument panel for correct readings with the vehicle at idle and in accordance with the technical manual for the vehicle being inspected. Check the following gages:

(1) The fuel gage.

(2) Tachometer gage.

(3) Oil pressure gage.

(4) The temperature gage.

(5) The battery-generator indicator.

(6) The transmission oil temperature gage.)

(7) The air pressure gage.

(8) On vehicles equipped with seat belts, ensure the security of the seat belts and their serviceability.

5. INSPECTION OF THE SPECIAL BODY EQUIPMENT

a. Inspection of the Artic Kit

(1) In the case of the M939 series vehicles, check the hard top enclosure and the quilted engine compartment cover for damage.

(2) Check the electric fuel pump and fuel lines located near the air cleaner assembly for leakage.

(3) Check the fuel burning personnel and engine coolant heater fuel lines and connections for signs of leakage.

(4) Inspect the fuel burning personnel and engine coolant heater air intake and exhaust tubes for damage, obstructions, and leakage.

b. Deep Water Fording Kit

(1) Inspect fording kit components for security of the attachments to the vehicle's body and components.

(2) Visually inspect the exhaust flange connections for carbon deposits indicating an exhaust leak.

(3) Listen for any evidence of an exhaust leak.

(4) In the case of the M998 series vehicles, check the exhaust and intake extensions and tube for security.

(5) In the case of the Logistics Vehicle System (LVS), refer to the appropriate technical manual for the proper fording operation procedures.

c. Winterization Kit

(1) In the case of the M998 series vehicle, inspect the artic top cover, pillars, curtains, and soft doors for tears or punctures.

(2) Inspect the engine coolant heater hoses for leakage.

(3) In the case of the Logistics Vehicle System (LVS), start the personnel and engine artic heaters, and run the engine heater until the engine coolant is between 140 and 180 degrees.

d. Winches

(1) In the case of the M809 series vehicles, check the shearpin for presence and condition, (shearpin connects the U-joint yoke and winch drive shaft). It is retained with a cotter pin at each end.

(2) Inspect the power take off (PTO) and propeller (drive) shaft for proper mounting and completeness.

(3) In the case of the M939 series vehicles, check the oil level in the reservoir by removing the filler cap with dipstick. The oil level should read above the red area. In the

case of the LVS MK15 and MK16 check the sight glass on the hydraulic oil reservoir to ensure there is sufficient fluid in the hydraulic system for winch operation.

(4) Check all winch controls for proper operation in accordance with the technical manual.

(5) In the case of the M998 series vehicle, the vehicle electrical system is used to power the winch. It is recommended to have the engine running while operating the winch so the alternator can keep the batteries charged.

(a) The operator, when utilizing the winch on the M998, should control the winching procedure by being seated inside the vehicle.

(b) The vehicle is equipped with a remote control which will allow the operator to operate the winch while he is seated in the vehicle.

6. MOTOR STABLES

a. The purpose of motor stables is to provide a means for effective first echelon maintenance on motor transport vehicles.

b. Motor stables is a supervisor controlled step-by-step procedure adopted by a large number of motor transport units/sections for the performance of first echelon maintenance on a large quantity of vehicles.

(1) An operator will be assigned to each piece of equipment and will perform maintenance on the equipment as described by the supervisor.

(2) The operators will not proceed to another maintenance task until told to do so by the supervisor.

c. The concept is limited in application only by the following:

(1) There must be available manpower resources within your unit to have or use the motor stables method.

(2) The type and amount of vehicles assigned to your unit may possibly cause difficulties in utilizing the motor stables method.

(3) There must be sufficient work space.

(4) Also, tools required to conduct motor stables should be available. If at all possible, check with your second echelon

maintenance section in regards to utilizing a mechanic, with tools, while motor stables are being conducted.

d. Motor stables should not be looked upon as a means for performing day to day first echelon maintenance.

e. Motor Stable Methods

(1) It will be necessary to have at least one person per vehicle.

(2) Should only be conducted on one type of vehicle at any given time. (Example: If conducting motor stables using the M939 series vehicle, do not attempt to perform first echelon maintenance on the M998 series vehicles at the same time.)